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SICKNESS RECORDS FOR INDUSTRIAL ESTABLISHMENTS[1]

No factory management, employee's organization, or public health agency can control or prevent sickness without knowing when, where, and under what conditions sickness actually occurs.

This knowledge is essential, not simply for a single day or month or year, but *continuously*. Eternal vigilance is never more necessary than in the control and prevention of disease, and this vigilance can be maintained only by the systematic reporting of sickness. The slow influence of many conditions, harmful or helpful, can not be recognized and evaluated unless records of ill health are currently available for observation and study in connection with a knowledge of the conditions under which people work and live. So well recognized is this fundamental principle that the effectiveness of a city health department is judged in large measure by the accuracy and completeness of its morbidity reports. For without dependable and prompt records of what sickness actually occurs, a public health agency is blind.

The same principle obviously holds true for groups of persons employed in factory, mine, or store; but it has not been put into practice except in relatively few establishments. This is true in spite of the fact that never before has so much attention been given to the health of workers. Progressive industrial establishments are spending large sums of money for the improvement of working conditions and for the care of workers who become sick. Literally thousands of organizations exist among employees for the purpose of affording financial relief to those who are disabled because of disease. Public health agencies are devoting much effort toward building up a knowledge of industrial hygiene. But, without current information as to the occurrence of disease and as to the conditions under which disease occurs, much of this money and of this effort has been spent "on general principles," or has been concentrated on the elimination of a few well recognized hazards to health.

[1] From the Statistical Office, United States Public Health Service. Prepared in cooperation with the committee on industrial morbidity statistics of the Section on Vital Statistics, American Public Health Association. The members of this committee were: Dr. Louis I. Dublin, chairman; Mr. Carl B. Auel; Mr. William A. Hathaway; Dr. George E. Tucker; and Dr. B. S. Warren, secretary.

Acknowledgements are made to a number of officials of sick benefits associations, industrial physicians, and others in various industrial establishments, and to representatives of the Federal Bureaus of the Census and of Labor Statistics, for data and suggestions.

Desirable and valuable as "wholesale sanitation" of places of work and of industrial communities and as safeguards against specific hazards may be, their adequacy can not be tested until we know as much as possible of what the entire sickness situation is from week to week or from month to month. Preventive measures can not be *definite* in their application unless where, when, and how disease occurs are definitely known.

The growing realization of the importance of a current index of sickness among employees—not only as a foundation for intelligent prevention of disease but as an essential in economical plant operation—led the Public Health Service to study the question of sickness records in industrial establishments. Information from several hundred plants which had sick benefit associations among their employees was secured, the information covering the character of the records kept, the preventive measures attempted, and the sickness experience for three years. The results of this inquiry showed that while many records were available, the records differed so widely in their form and character and were so rarely prepared for use as indices of sickness prevalence and incidence that they were practically valueless, except in a few instances, for the chief purpose in view. Accordingly it was determined to work out, if possible, a practicable standard plan for reporting and recording sickness which would be elastic enough for adaptation to many systems already in use by individual plants and yet would furnish at least some of the fundamental facts necessary for a current knowledge of sickness prevalence among the wage earning population.

After considerable study, the project was presented in 1917 before the Vital Statistics Section of the American Public Health Association[1] with the result that a special committee on industrial morbidity statistics was formed to work in conjunction with the Public Health Service. This committee was organized to represent the Public Health Service, statisticians interested in industrial morbidity, employment and welfare managers, and organized labor. Its report, presented to the Vital Statistics Section of the American Public Health Association in October, 1918, was made after a number of sessions held during the year. It recommended (1) a standard plan for recording sickness among employees and (2) that the Public Health Service should be made the central agency or clearing house for the collection, analysis, and publication of industrial morbidity statistics on the grounds that such an arrangement would promote uniformity in the statistical procedure used and that no bias could be attached to the results.[2] This committee has continued its work during 1919 in

[1] Warren, B. S., and Sydenstricker, Edgar: "Morbidity Statistics for War Industries Needed." Public Health Reports, Feb. 1, 1918.

[2] Reprint No. 484 from the Public Health Reports, Aug. 30, 1918. See also Public Health Reports, Oct. 17, 1919, pp. 2289-2294.

cooperation with the Public Health Service, having also the assistance and advice of representatives of the Vital Statistics Division of the Bureau of the Census, and the Bureau of Labor Statistics.

With the assistance of this committee and of others, two suggested plans for the recording and reporting of disease prevalence among workers were formulated, and these plans are presented in the following pages in the hope that they may be utilized by individual plants and sick benefit organizations of workers.

ESSENTIALS IN SICKNESS RECORDS AND REPORTS.

Essential facts to be recorded.—Unless sickness among a group of persons is expressed in the form of a *rate*, there is afforded no basis for comparison with sickness among other groups of persons, nor can the increase or decrease of sickness among any group be measured. In order to express sickness in terms of rates per 100 or per 1,000 or more persons considered, two sets of records are necessary, namely:

(*a*) The number of persons for whom sickness records are kept, whether they are actually sick or not, during a given period.

(*b*) The number of cases of sickness occurring among these persons during the same period.

These are fundamental facts that are essential to any knowledge of sickness. In order to ascertain whether or not a *specific* group of the persons considered is affected relatively more or less, for both the persons considered and the cases of sickness there should be a record kept of

(*c*) The sex, age, and occupation (or department within the plant) of each person employed or holding membership in the sick benefit association, and of each case of sickness.

It is necessary also that the *disease causing sickness* should be recorded. Hence for every case of sickness a record is essential of

(*d*) The diagnosis of the sickness, preferably by a physician.

Obviously it is important that the *severity* of cases of sickness from various diseases among groups of persons of different sex, age, and occupation should be known. Probably the most practicable measure of the severity of illness is the duration of the period of inability to work. Therefore, if possible, for each case of sickness a record should be kept of

(*e*) The number of *days lost* from work by each worker on account of each illness.

Where sick-benefit associations keep the record of sickness, the number of sick days paid for will indicate the severity of each case.

The greater the detail in which the facts as to conditions of work and living are ascertained and recorded, the greater will be the degree of accuracy and definiteness with which the facts of sickness can be studied and analyzed. The foregoing essentials, however, are

believed to be sufficient for *current* sickness records. Where it is desirable to analyze in greater detail the conditions under which sickness from any cause or causes occur, it becomes a matter of special study.

Standardization in records and reports.—To render possible comparisons of the sickness experience of one group of workers with another, it is obvious that not only the essential facts as outlined above must be recorded, but that they should be recorded and tabulated in similar terms. It is necessary that as far as possible the same methods should be employed in stating the number of persons for whom records are kept and the number of cases of sickness, and in grouping persons and cases according to sex, age, and occupation. Of equal importance is agreement as to the terms in which the causes of sickness (diagnosis) are stated. If it be practicable gradually to standardize the methods and terms used, the value of sickness records becomes cumulative. Not only will the records for any one establishment or association be comparable for different periods, but the records of an increasing number of plants will furnish a body of material which will be of inestimable importance in the study of disabling sickness and of various diseases, especially in their relation to conditions of work.

It is believed that from such a body of material, as it accumulates, the normal expectancy of sickness and of the occurrence of various diseases among persons of different sex and age under varying conditions, the amount of preventable illness, the effect of certain hazards and of improvements in conditions may be ascertained. Undoubtedly it may be hoped that these accumulations of records and the records for groups of workers will afford a basis for the further study of the incidence of specific diseases in relation to conditions of work and living when such studies may appear to be desirable.

Manifestly if regular reports of the occurrence of disease are made to a single collecting agency, this desired standardization of records and accumulation of experience will be greatly furthered. To this end, and in accordance with the recommendations of the committee on industrial morbidity statistics, the Public Health Service hopes that those establishments and sick-benefit associations whose sickness records conform to the plan herein described will furnish monthly reports of the number of persons for whom records are made and of the cases of sickness (by disease) occurring among such persons. Accordingly, in the following plan, tentative forms have been prepared for monthly reports to the Statistical Office of the Public Health Service. It is desired to publish tables based on these reports, without mention, of course, of any individual establishment or association, as a part of the regular statistical record of disease prevalence made by the Service. In the analysis of such reports, as

well as of the detailed records of certain establishments, the Public Health Service may be in a position to cooperate in the control and prevention of diseases causing sickness among employees.

PROPOSED PLANS FOR RECORDING AND REPORTING SICKNESS AMONG INDUSTRIAL EMPLOYEES.

In order to make possible the adoption of a standard method of sickness reporting by as many establishments and sick benefit associations as possible, two plans prepared by the Public Health Service and later considered by the committee on industrial morbidity statistics, Vital Statistics Section of the American Public Health Association, are presented below. Both of these plans are based on the same principles, but they differ with respect to the amount of detail on which personnel records are kept.

In each plan it is regarded as essential that a diagnosis of each case of sickness causing disability be recorded.

Plan A.

1. *Record of personnel and sickness.*—This plan is based on the keeping of an individual personnel card for every employee to be considered, whether such employee becomes sick or not. The card also provides blank spaces for the record of illnesses to which the individual may be subjected. In some establishments and associations personnel cards of various kinds are already kept, and only certain modifications may be necessary to secure uniformity in sickness records.

The following card (4 by 6 inches) is suggested.

1. Name of Employee.		2. Check No.	3. Date This Record Begins	4. Firm No.	5. Date Employment Ended.
6. Color and Sex.	7. Year of Birth.	8. Marital Condition.		9. Speaks English?	10.

11. Departments and Occupations in Plant.

From—	To—	Months.	Department.	Occupation.	Possible Injurious Conditions.
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....

12. Former Occupations Outside of Plant.

From—	To—	Months.	Occupation.	Industry.	Possible Injurious Conditions.
.....	.....	.....	.....	.....	.....

13. Remarks:

The reverse side of the card, as shown below, provides for the record of each case of disabling sickness experienced by the individual employee.

Record of Absences from Sickness and Non-Industrial Injuries.				
14. Dates of Absence.		15. Days Lost Through Illness.	16. Sickness or Non-Industrial Injury Causing Disability (Diagnosis).	17. By Whom Diagnosed.
Beginning.	End.			
18. Remarks:				

Form A-1-1919-U. S. Public Health Service.

EXPLANATION OF TERMS.

Check No.—The employee's number should be used in case numbers instead of names appear on the pay-roll records of the company.

Firm No.—Each company or sick benefit association cooperating with the United States Public Health Service will be given a number so that the identity of a particular firm may at all times be kept confidential.

Date Employment Ended.—Give date of termination of service if employee resigned or was discharged, or of death, if employee died.

Marital Condition.—State whether married, single, widowed, or divorced.

Occupation.—Occupation should be stated definitely to indicate the particular kind of work done in the department. For example: Sand blaster of metal parts, japanner, oven tender, mixer, wringer, dipper. Do not use such indefinite terms as laborer, machinist, foreman, operator.

Possible Injurious Conditions.—Record any working conditions in specific occupations which might be considered harmful, as exposure to excessive heat, cold, or humidity; poisonous dusts, fumes, vapors, gases, or liquids; the handling of materials known to retain or suspected of retaining harmful bacteria; heavy lifting, muscular strain, or long hours of labor. Possible health hazards of all kinds should be determined by the plant physician.

Former Occupations Outside of Plant.—If employee has engaged in numerous occupations prior to employment by the present company, only the two occupations which immediately preceded work in the present plant should be recorded.

Dates of absence.—The date of beginning of absence is the date on which the employee quit work, irrespective of the hour. The date absence ended is the date prior to the one on which employee returned to work, irrespective of the hour. If em-

ployee is absent on account of sickness for only a fraction of a day, do not record the illness, as only sickness incapacitating *for one day or longer* is included in the definition of a case of disabling sickness. For sick benefit associations, the date on which a member began to draw sick benefits is regarded as the date of beginning of absence, and the date on which sick benefits ceased is regarded as the date on which absence ended.

Days Lost Through Illness.—This is the period between the date of the beginning and the date of the close of the absence, excluding Sundays and holidays. For sick benefit associations, the number of working days for which sick benefits were paid should be considered as days lost through illness.

Sickness or Non-Industrial Injury Causing Disability.—Record the disease or condition causing disability as given by the attending physician. Where there is no physician, give the diagnosis as described by the employee. The International List of Causes of Death, however, should be the basis of classification, and the physician should state his diagnosis in such terms as to permit of assignment to the appropriate title of the International List.[1] Injuries should be recorded only if nonindustrial in character—that is, if they happened outside of working hours while employee was not at work. Occupational disease should be recorded.

By Whom Diagnosed.—Record whether by physician, nurse, or patient.

Remarks.—Give any additional information pertinent to the case.

The face of the card is to be filled out for each employee at the time of his employment, or at the beginning of his membership in the sick benefit association if sick benefit records are used. The reverse side is to be filled out as cases of disabling illness occur. The card is then kept in an active file, subdivided by departments, so long as the employee remains with the establishment (or is full member of the sick benefit association), and after that in an inactive file. When the employee is shifted from one department to another the card is to be revised to cover the change in the space given to occupation, the date of the change is recorded, and the card is transferred to the file of the department to which the employee goes.

2. *Reports and tabulation.*—The card shown above will serve both as a record of personnel and of sickness among the personnel. To be of current value, of course, it is necessary to put into (monthly) tabular statements the number of the personnel, the number of cases of sickness occurring among them, and the sickness rate per 1,000 persons, for any group of workers desired.

To facilitate keeping the personnel record it is suggested that "tabs" or "signals," located in certain divisions of the top of the card, be used to designate sex, color, and age group. Three such age groups will answer. Thus, a blue signal in the left third of the top of the card would indicate "white male, under 25 years," in the middle third "25 to 44 years," and in the right third "45 years and over." A red signal could be used for the white females, a yellow one for

[1] The committee on industrial morbidity statistics of the vital statistics section, American Public Health Association, has recommended that "the International List of Causes of Death shall be the basis of classification of sickness in industrial morbidity studies. This classification may be subdivided as occasion arises, either through interest in some special form of disease or out of the peculiar geographical location or occupational hazards."

It was further recommended that the full list of titles of the International List be printed on the back of all certificates which are required by establishments as proof of sickness, with instructions that the physician should state his diagnosis in such terms as to permit of assignment to the appropriate title of the International List.

colored males, and a green one for colored females. At the end of each month the clerk in charge of the file would record the number of workers in each sex, color, and age group for any occupation or department or for the plant as a whole, obtaining the data solely from the tabs. The monthly records of any year would be summed up for each color, sex, and age class to find the average number of employees in each group.

The record of sickness may be secured from the cards without difficulty if a signal distinct from the personnel signals be attached to each card as the illness occurs and removed at the end of the month during which the illness terminates.

For reports to the Public Health Service, as well as for the convenience of plant managers or officials of sick benefit associations, the count of the personnel cards grouped as indicated above could be entered in the following form:

PERSONNEL RECORD.

.....
(Name of plant or sick benefit association.)

Number of employees (or members) on the last day of ....., 19...
(Month)

Department (or occupation)	Total (both sexes.)				Males.				Females.			
	All ages.	Under 25.	25 to 44.	45 and over.	All ages.	Under 25.	25 to 44.	45 and over.	All ages.	Under 25.	25 to 44.	45 and over.
.....												
.....												
.....												
.....												
.....												
.....												
.....												
.....												
.....												
.....												
.....												
Total.....												

For the purpose of accuracy, it is believed important that a report be made for each case of sickness during each month, whether such case began during the month or began prior to the month for which the report is made. The following form is suggested upon which to list separately the cases of sickness from which a count can be made for tabulation.

LIST OF CASES OF DISABLING SICKNESS.

(Name of plant or sick-benefit association.)

During the month of....., 19.....

Name of Employee.	Sex.	Age.	Occupation (or Department).	Record of Sickness.			
				Date on which sickness		No. days lost from work during month.	Diagnosis.
				Began.	Ended.*		

* If employee quit before recovery, enter date of quitting and mark "Q"; if employee's illness ended in death, enter date of death and mark "D."

These two monthly statements or reports will enable monthly tabulation of the incidence of such diseases as occurred and of the severity (in terms of days sick) of each disease or of all sickness among employees of different sex and age in various occupations or departments. The nature and form of the tables to be made from these data depend, of course, on the character and purpose of the information desired, and the following tables are merely presented as illustrations:

TABLE 1.—*Number of cases of sickness having a duration of ——— days or more, excluding industrial accidents, and rates per 1,000 exposed, by age and by sex, during the month of ——— 19—.*

Age.	Males.			Females.		
	Number exposed.	Cases of sickness.	Cases per 1,000 exposed.	Number exposed.	Cases of sickness.	Cases per 1,000 exposed.
Total, all ages						
Under 25 years						
25 to 44 years						
45 years and over						

Distinction may further be made for white and colored persons where there is a sufficient number of colored employees. Where no such classification is desired in the personnel of the establishment it may be useful to distinguish between those speaking English and those not speaking English.

TABLE 2.—*Average number of days of sickness in Table 1 per employee exposed, and days per case of sickness by age and sex during the month of ....., 19.... (Color or language distinction may be made as suggested in Table 1 where the conditions warrant such classification).*

	Males.				Females.			
	Number exposed.	Days lost through sickness.	Days lost per 1,000 exposed.	Days lost per case of sickness.	Number exposed.	Days lost through sickness.	Days lost per 1,000 exposed.	Days lost per case of sickness.
Total, all ages								
Under 25 years								
25 to 44 years								
45 years and over								

TABLE 3.—*Number of cases of sickness in Table 1 classified by disease or condition, and rates per 1,000 exposed, by sex, during the month of ....., 19....*

Disease or condition.	White males.		White females.	
	Number of cases.	Cases per 1,000 exposed.	Number of cases.	Cases per 1,000 exposed.
All disease and conditions				
Typhoid fever, etc				

TABLE 4.—*Number of cases of sickness in Table 1 and days of sickness in Table 2 classified by principal occupations, and rates per 1,000 exposed in each occupation.*

Industry and specific occupation.	Number of cases of sickness.	Cases per 1,000 exposed.	Number of days lost through sickness.	Days lost per 1,000 exposed.	Days lost per case of sickness.
Automobile factories:					
Grinders					
Painters					
Varnishers					
Enamelers, etc					

TABLE 5.—*Sickness rates per 1,000 exposed in each occupation or department from specified diseases during the month of ....., 19....*

Industry and specific occupation (or department).	Cases per 1,000 exposed, of—					
	Typhoid fever.	Influenza.	Rheumatism.	Pneumonia.	Malaria.	Etc.
Automobile factories:						
Grinders						
Painters, etc						

Aside from such current presentations of sickness incidence as may be afforded from monthly reports, the cards will furnish material for more detailed tabulations of sickness incidence during extended periods. Thus at the end of six months or of a year, special tabulations may be undertaken, or it may be desired to analyze the accumulated records in considerable detail for the purpose of finding out the influence of specific conditions. The Statistical Office of the Public Health Service, in conjunction with the Office of Industrial Hygiene and Medicine of the Public Health Service, will cooperate with such plants and sick benefit associations as may desire assistance in making these statistical analyses.

Plan B.

This plan is designed for those plants and sick benefit associations which find it impracticable at the present time to keep a personnel card for each employee. Since, however, a record of personnel is necessary in order to express sickness incidence in terms of rates, a monthly statement of the number of employees or members of sick benefit associations employed in the various occupations or departments on the last day of each month could be made. The following, to be made up from the payroll or membership record for reporting this information to the Public Health Service, as well as for the use of the plant or association, is suggested:

PERSONNEL RECORD.

.....
(Name of Plant or Sick Benefit Association.)

Number of Employees (or Members) on the last day of....., 19...

Department (or occupation).	Total.	Males.	Females.
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

The report of cases of sickness under Plan B would be the same as under Plan A, as it would be made up from the records of the plant physician or association physician or secretary.

Plan A Preferable.

For reasons which are obvious from the point of view of accurate knowledge to be gained of conditions affecting disease prevalence,

Plan A is far preferable to Plan B. Plan A would afford a more accurate expression of the sickness rate for any department or occupation and for the plant as a whole, and more detailed information as to age as a factor in comparisons of the sickness rates. If it is found impracticable or inadvisable in any plant, however, to inaugurate an individual record card of personnel and sickness, Plan B would be distinctly more than a makeshift; it would be a definite advance over the absence of any record or over the great majority of records now kept.

COOPERATION DESIRED.

The Public Health Service invites any industrial establishment or employees' sick benefit association to take up the question of sickness records and reports with the Statistical Office, either by personal conference or by correspondence with a view to establishing active cooperation. It doubtless will be found that the forms suggested in the foregoing paper need modification, and in most instances any standard plan must be adapted to conditions that are peculiar to any individual plant. For this reason it is believed that definite advantages will result if all plants or associations which may be interested will consult and keep in touch with the Statistical Office of the Public Health Service.

The need for accurate knowledge of disease prevalence is a vital one. No employer or group of employees can hope to improve health conditions efficiently and economically without this knowledge. The Public Health Service is greatly handicapped in its work in this branch of industrial hygiene, by the lack of this fundamental information. There can be no doubt that in some systems of current information as to the occurrence of sickness there is not merely a field but an urgent necessity for cooperative effort that will be a real basis for control and prevention of disease among industrial employees.

NOTE.—Forms for reports to the Public Health Service as outlined above or as may be adapted to records already existing in individual plants, together with explanations as to their use, will be furnished upon request. Before using or adapting such forms, it is suggested that consultation be had with the Statistical Office, United States Public Health Service, 228 First Street NW., Washington, D. C.